

REMARKS

Reconsideration of the above-identified application, in view of the above amendments and the following remarks, is respectfully requested.

I. Status of the Claims

Claims 3 and 4 have been amended and the amendments do not add new matter.

Claims 3-7 are pending.

Specifically, support for the amendment to claims 3 and 4 is found on page 10, lines 11-20 and Figure 4.

II. 35 U.S.C. § 103(a) Rejections

Claims 3-7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's admitted prior art (AAPA) in view of U.S. Patent No. 5,658,082 Tsushima et al. (hereinafter "Tsushima"). Applicants respectfully traverse the above rejection by stating that neither the AAPA nor Tsushima teach or disclose the present invention or suggest such a combination.

Claims 3 and 4 have been amended to recite the step of "forming said bearing part [or said rolling raceway to have] an L10 life ratio ... when tested in a standard lubricant ... greater than or equal to three times an L10 life ratio of the conventional bearing part [or rolling raceway]." Tsushima's invention is in contrast to the presently claimed invention. Tsushima,

in Table 1, only defines an L10 life ratio of a bearing part, tested in a clean lubricant, between 1.9 and 2.2. Thus, the L10 life ratio of Tsushima's bearing part is, at best, 2.2 times the L10 life ratio of a conventional bearing part. Applicants submit that Tsushima's "clean lubricant" is standard lubricant without steel particles. *See*, e.g. Tsushima, column 6, lines 22-28.

Therefore, Applicants respectfully submit that all the claim limitations of present invention are not taught or suggested by AAPA or Tsushima and respectfully request withdrawal of the above rejection.

CONCLUSION

In view of the foregoing, it is believed that claims 3-7 are in condition for allowance. It is therefore earnestly requested that the present application, as a whole, receive favorable consideration and that all of the claims be allowed in their present form.

If there are any other issues remaining which the Examiner believes could be resolved through either a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned at the telephone number indicated below.

Respectfully submitted,



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TECHNOLOGY CENTER R3700

Docket No: 9495/0L031-US0

07278

PATENT TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Osamu KODAMA et al.

Serial No. 09/531,679

Art Unit: 3726

Confirmation No.: 6246

Filed: March 20, 2000

Examiner: David P. BRYANT

For: **BEARING PARTS FOR CYLINDRICAL ROLLER BEARING AND
NEEDLE ROLLER BEARING**

MARKED-UP VERSION FOR RESPONSE

May 2, 2003

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

IN THE CLAIMS:

Please amend the claims pursuant to 37 C.F.R. § 1.121.

Please replace claims 3 and 4 with the following amended claims 3 and 4.

3. (Twice Amended) A method for producing a bearing structure, comprising:

carbonitriding a surface of a bearing part to form a layer containing 30% to 80% retained austenite for contacting a surface carburizing layer used as a rolling raceway surface of the roller of the cylindrical bearing;

forming one of a cylindrical roller bearing and a needle roller bearing;

carbonitridizing a surface of said bearing to produce an amount of retained austenite in a surface layer that is increased by about 30%;

subjecting said roller to a surface finishing which produces micro concave-convex portions in a random direction; and

forming the bearing part wherein an L10 life ratio of said bearing part, when tested using standard lubricant, is greater than or equal to three times an L10 life ratio of the conventional bearing part.

4. (Amended) A method for forming a rolling raceway surface for a cylindrical bearing comprising:

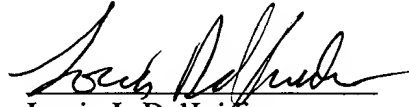
carburizing a surface of said rolling raceway surface to produce a carburized layer;

carbonitriding a surface layer of said carburized layer; [and]

the step of carbonitriding including forming a surface layer containing from 30% to 80% retained austenite in said rolling raceway surface; and

forming said rolling raceway wherein an L10 life ratio of said rolling raceway,
when tested using standard lubricant, is greater than or equal to three times an L10 life ratio of
the conventional rolling raceway.

Respectfully submitted,

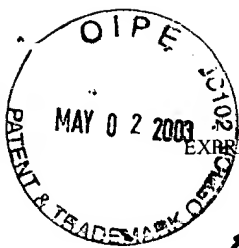


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For: **BEARING PARTS FOR CYLINDRICAL ROLLER BEARING AND
NEEDLE ROLLER BEARING**

PENDING CLAIMS AS OF MAY 2, 2003

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

3. (Twice Amended) A method for producing a bearing structure, comprising:
- carbonitriding a surface of a bearing part to form a layer containing 30% to 80% retained austenite for contacting a surface carburizing layer used as a rolling raceway surface of the roller of the cylindrical bearing;
- forming one of a cylindrical roller bearing and a needle roller bearing;

carbonitridizing a surface of said bearing to produce an amount of retained austenite in a surface layer that is increased by about 30%;

subjecting said roller to a surface finishing which produces micro concave-convex portions in a random direction; and

forming the bearing part wherein an L10 life ratio of said bearing part, when tested using standard lubricant, is greater than or equal to three times an L10 life ratio of the conventional bearing part.

4. (Amended) A method for forming a rolling raceway surface for a cylindrical bearing comprising:

carburizing a surface of said rolling raceway surface to produce a carburized layer;

carbonitriding a surface layer of said carburized layer; [and]

the step of carbonitriding including forming a surface layer containing from 30% to 80% retained austenite in said rolling raceway surface; and

forming said rolling raceway wherein an L10 life ratio of said rolling raceway, when tested using standard lubricant, is greater than or equal to three times an L10 life ratio of the conventional rolling raceway.

5. The method according to claim 4, further comprising:

surface finishing a surface of said surface layer after the step of carbonitriding;
and

the step of surface finishing being effective to produce a surface having a cylindricity and a surface roughness suitable for use as a rolling raceway surface.

6. The method according to claim 5, wherein the step of finishing includes producing micro concave-convex portions in random directions said surface.

7. The method according to claim 4, further comprising heat treating said rolling raceway surface to produce residual compression stress.